

I. LARSEN.
SNAP SWITCH.

APPLICATION FILED OCT. 2, 1907.

994,011.

Patented May 30, 1911

Fig. 1.

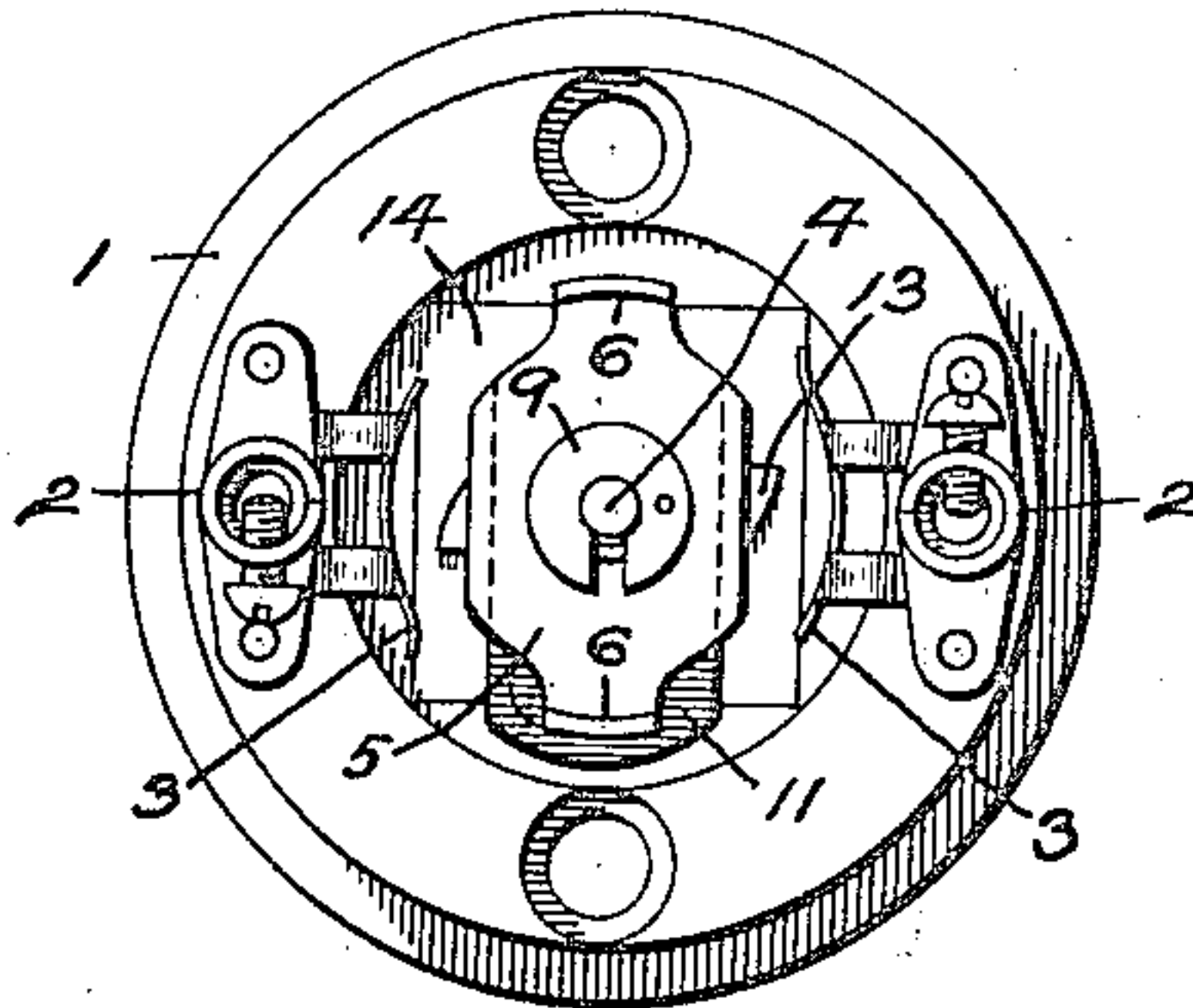


Fig. 6.

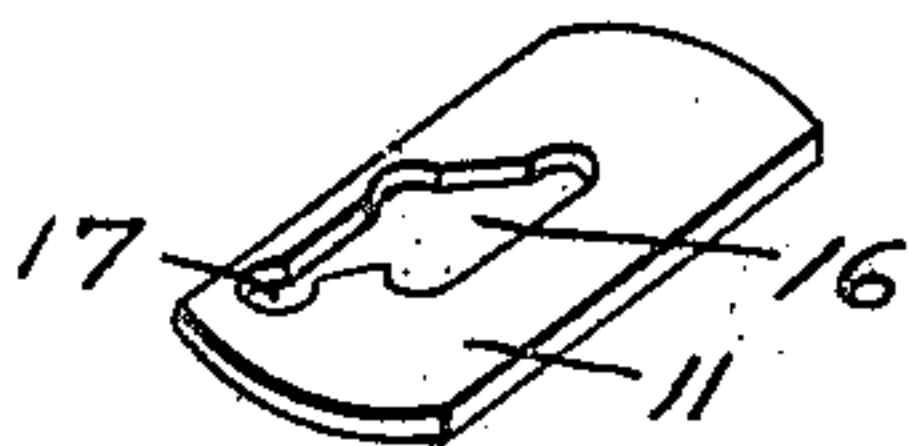


Fig. 7.



Fig. 2.

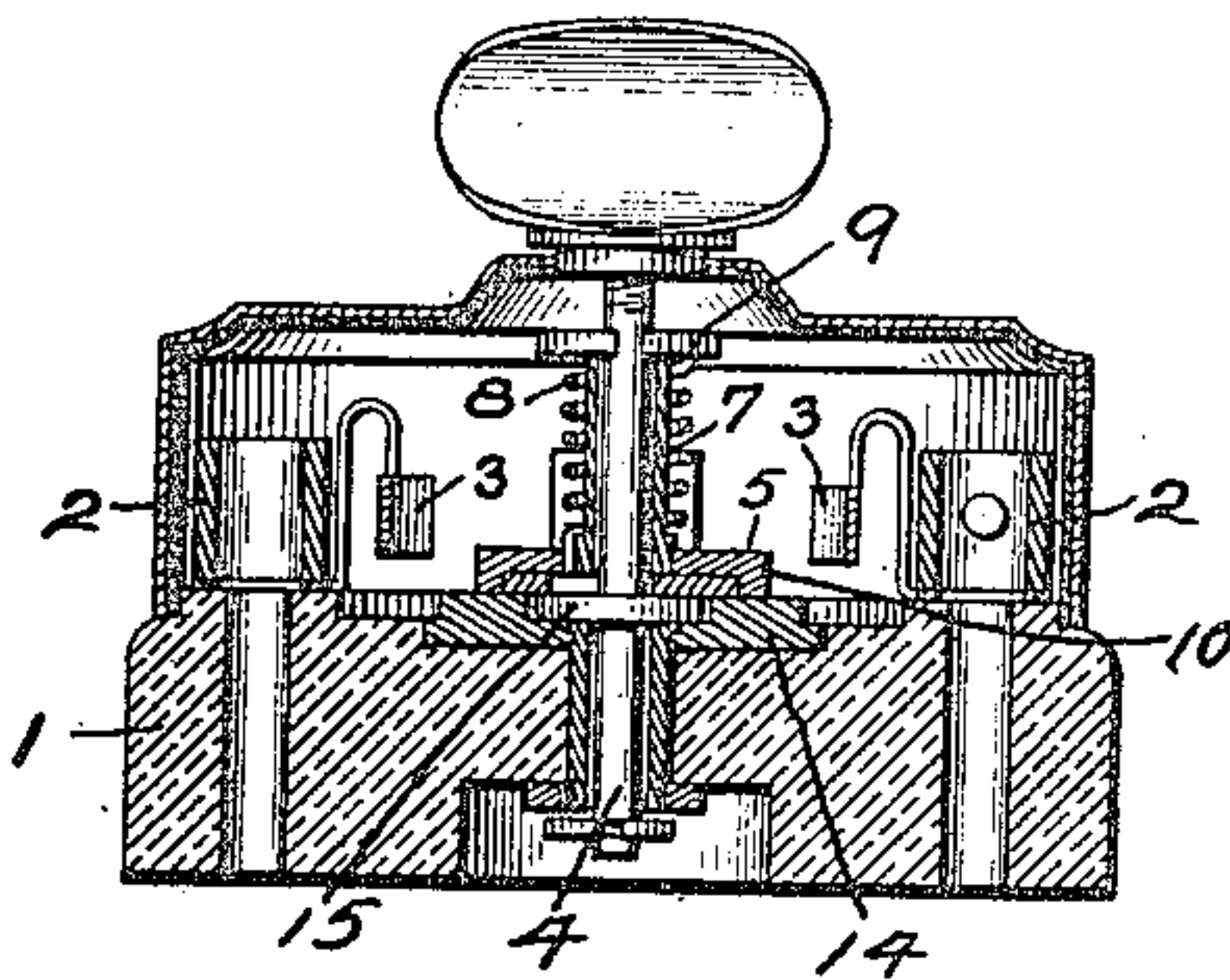


Fig. 3.

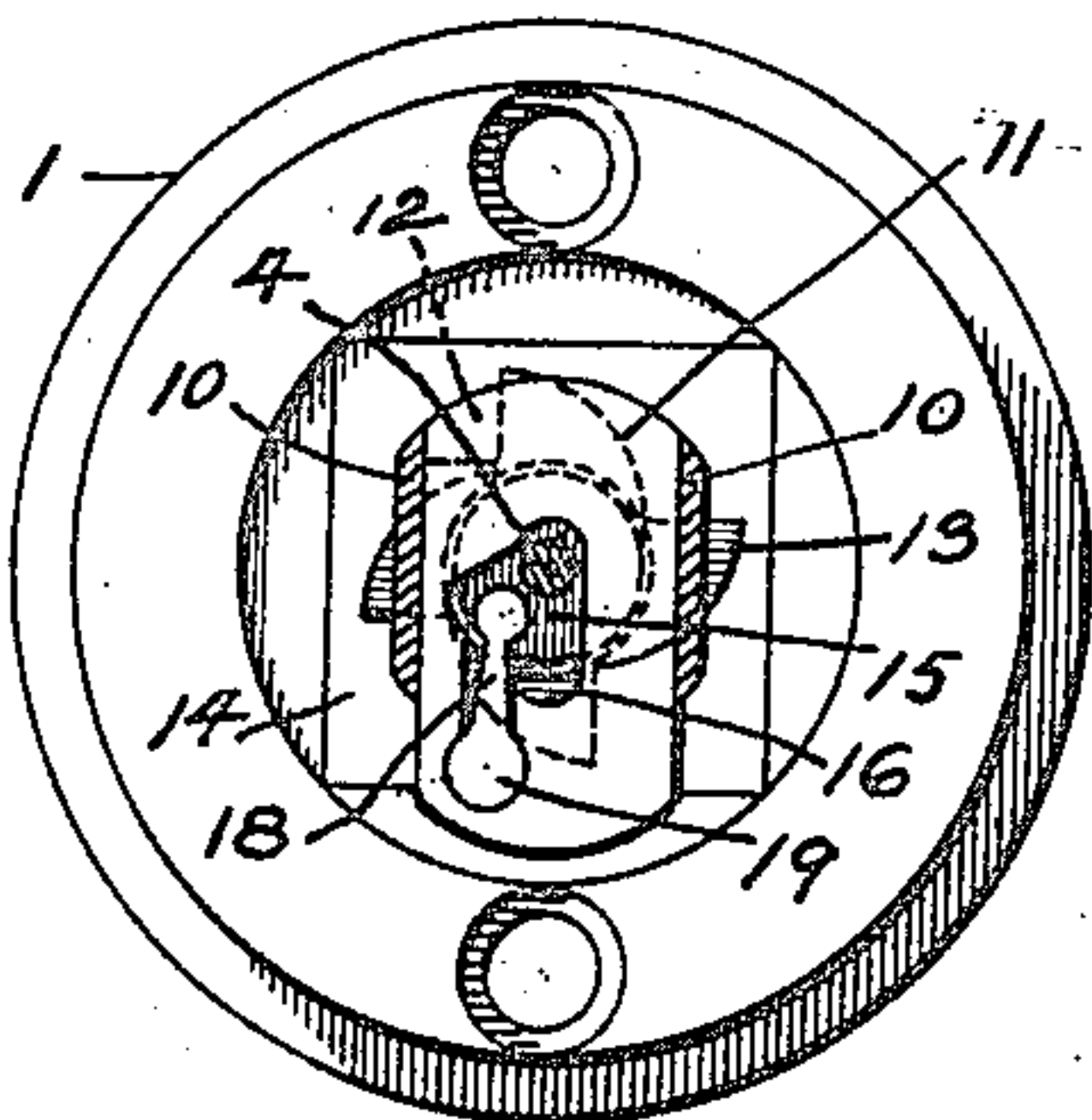


Fig. 4.

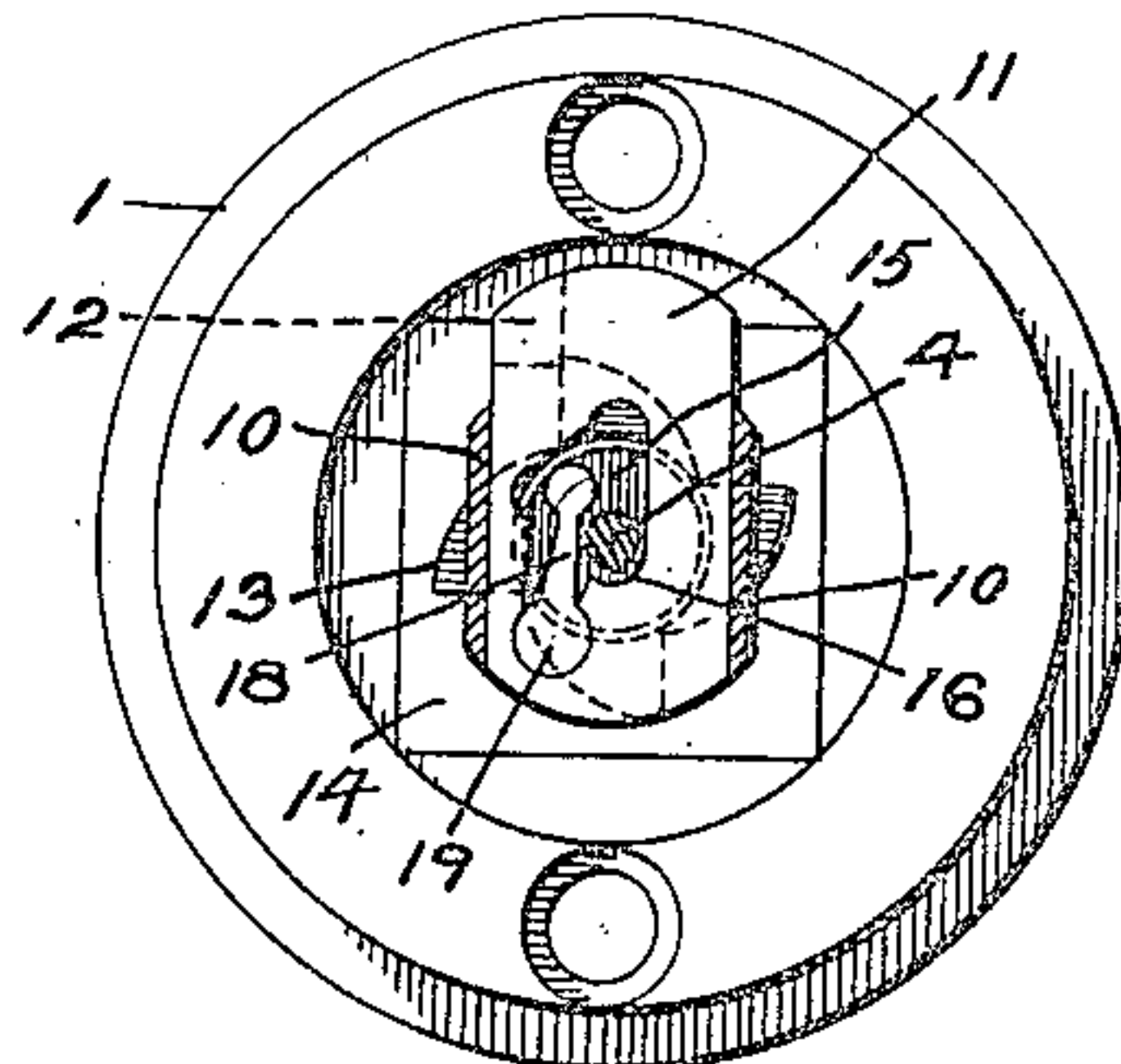
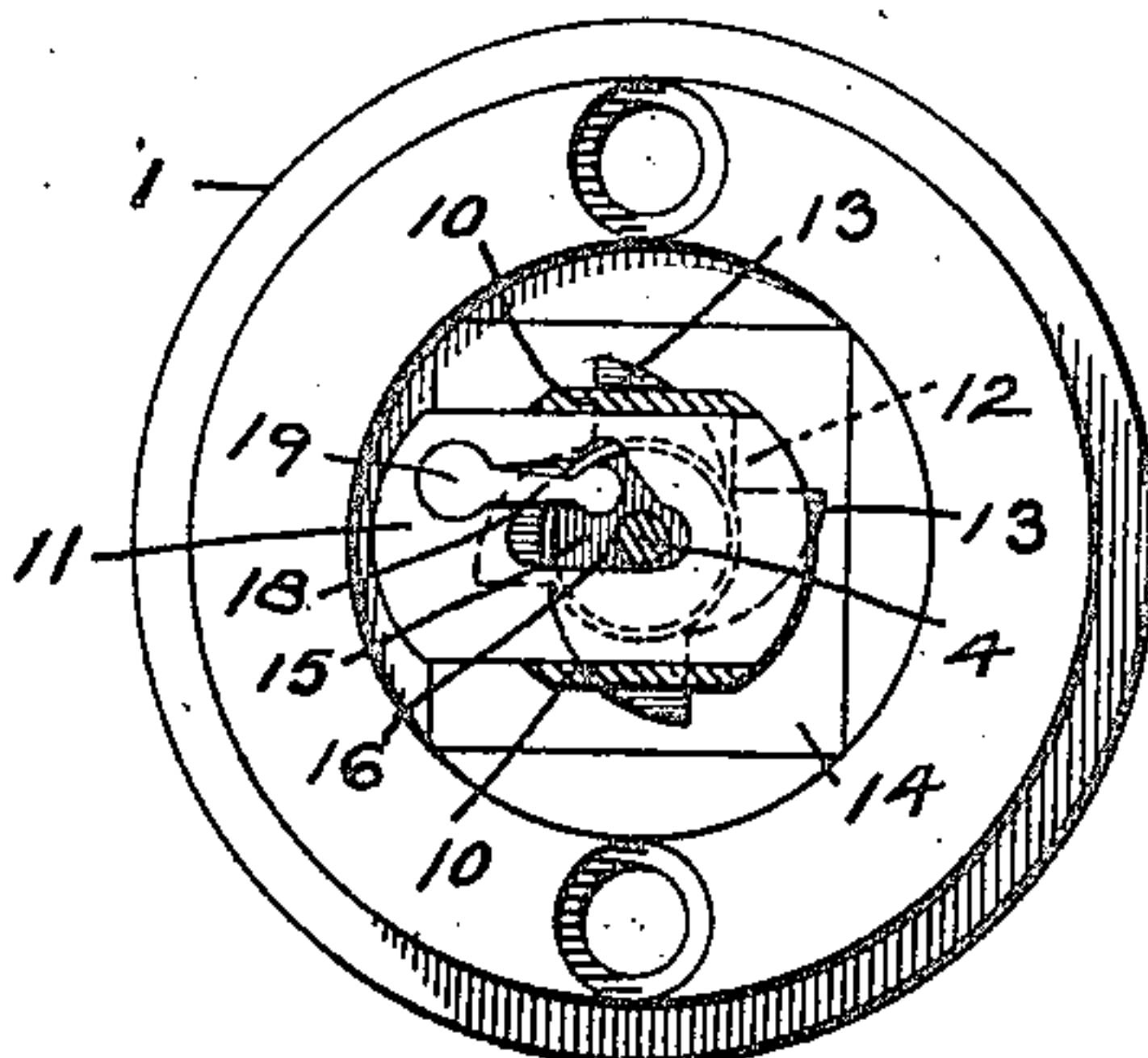


Fig. 5.



WITNESSES

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UNITED STATES PATENT OFFICE.

INGVALD LARSEN, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

SNAP-SWITCH.

994,011.

Specification of Letters Patent.

Patented May 30, 1911.

Application filed October 2, 1907. Serial No. 335,471.

To all whom it may concern:

Be it known that I, INGVALD LARSEN, a subject of the King of Norway, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Snap-Switches, of which the following is a specification.

This invention relates to rotary electric switches of the type in which the rotation of the spindle puts a tension on a helical spring attached to the switch-plate, and also reciprocates a catch-plate to disengage it from a fixed stop when the proper tension of the spring has been reached.

Heretofore various modes of communicating the motion of the spindle to the catch-plate have been devised, but my invention aims to avoid the troubles which have occurred in some or all of these contrivances.

To this end, instead of a pinion and rack, or a pin and slot, or such like device, I employ a crank disk and connecting-rod, the former fixed on the spindle and the latter pivotally attached to said disk and to the catch-plate.

In the accompanying drawing, Figure 1 is a top plan view of a snap switch embodying my invention, the handle and cover being removed; Fig. 2 is a diametrical cross section with the handle and cover in place; Figs. 3, 4 and 5 are sectional plan views showing the operation of the snap-action parts; Fig. 6 is a perspective view of the catch-plate; and Fig. 7 is a perspective view of the connecting-rod.

The switch is provided with a base 1 of insulating material, to which are secured the binding-posts 2 carrying the stationary yielding contacts 3, concentric with a spindle 4 which is rotatably mounted in said base. The switch-plate 5, which carries the movable contacts 6, is provided with a long hub 7 which is loosely mounted on the spindle. One end of a helical spring 8, concentric with the spindle, is attached to a collar 9 on said spindle and the other end is inserted in a hole in said switch-plate. The switch-plate 5 is provided with depending side flanges 10 which form guides between which the catch-plate 11 is held and guided. The catch-plate has a lug 12 arranged to engage in succession with a series of teeth or stops 13 on a stop-plate. These teeth arrest the rotation of the parts after the switch-plate has made a predetermined angular movement. In the switch illustrated there are

four teeth or stops ninety degrees apart, so that each movement of the switch-plate is a quarter revolution. The stop-plate is stationary, the teeth being preferably formed integral with a square base 14 which is fitted into a shallow recess in the base 1, the teeth being arranged in a circle concentric with the spindle. At the center of the stop-plate is a circular recess in which is received a circular disk 15 secured to the spindle. The catch-plate lies just above this disk, and is provided with a longitudinal slot 16 through which the spindle passes. The slot has a keyhole-shaped extension at one end, the enlarged portion 17 thereof being circular.

A connecting-rod 18 has at one end a circular head 19 to fit the enlargement of the slot, and thus be free to swing laterally in the plane of the catch-plate to a limited extent. The other end of the connecting-rod has a wrist pin 20 adapted to enter a suitable hole in the disk 15, so that when the spindle is rotated the catch-plate will be reciprocated in an obvious manner; the slot 16 being wide enough to permit the rod to vibrate without hindrance.

The operation of the switch is similar to that of other switches of this type. Assume the parts to stand as shown in Fig. 3. A quarter rotation of the spindle brings them into the position shown in Fig. 4 with the lug 12 just ready to slip off the stop 13, and the spring under torsional strain. When the lug slips off, the spring rotates the switch-plate and catch-plate a quarter revolution to the position shown in Fig. 5, the connecting-rod forcing the catch-plate backward in its guides so that the lug 12 will strike the next stop 13, and arrest the parts in this position.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In a snap-switch, the combination with a rotatable spindle, of a switch-plate loosely mounted thereon and provided with parallel flanges, a spring connecting said spindle and plate, a catch-plate capable of reciprocation between the flanges of said switch plate and having a lug, a stationary stop-plate having teeth, a disk on said spindle, and a connecting-rod pivotally attached to said catch-plate and to said disk near its axis of rotation.

2. In a snap-switch, the combination with a spindle having a disk provided with a hole, of a catch-plate containing a longitudinal

slot having a circular enlargement at one end, and a connecting-rod having a circular head to fit said enlarged slot and a wrist pin to engage with the hole in said disk.

- 5 3. In a snap-switch, the combination with a spindle having a disk provided with a hole, of a catch-plate containing a longitudinal slot having a circular enlargement at one end, and a connecting-rod having a circular head to fit said enlarged slot and a

wrist pin to engage with the hole in said disk, said rod lying in the same plane as the catch-plate and adapted to swing laterally in said plane.

In witness whereof, I have hereunto set 15
my hand this 30th day of September, 1907.
INGVALD LARSEN.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."
